

**AMBIENT NOISE STUDY  
ROOM 502  
999 E. STREET, NW, WASHINGTON, DC  
(Teleconferencing Center)**

Pursuant to your request, the Forte-Stevens Group conducted a full physical survey of the primary conference room, Rm. 502, within 999 E street NW, Washington, DC. on 12th and 19 December to document certain audio/sound difficulties originating within this room. There are backfeed/reverberation problems associated with communications/teleconferencing to remote agency locations.

Specifically, problems have occurred during the weekly telecommunications meetings whereby the directors discuss agency issues with their counterparts at the West Virginia facilities.. Voice communication via the existing speaker phone system creates backfeed, disruption and voice drop (VD). Thus Forte-Stevens has been requested to conduct a study of this particular conference room with determinations and recommendations to alleviate said problems.

**FINDINGS**

Room 502 is an oversized conference area approximately thirty feet by sixty feet built with traditional materials including acoustical ceiling, gypsum board walls, conventional floor covering, non sound rated window glass, recessed light fixtures, recessed audio speakers and wooden doors. Most surface areas are constructed of sound reflecting materials offering little/ none sound absorbsution and/or sound containment.

Utilizing a SIMPSON 886 sound decibel measurement meter (calibrated 12 December 2000), sound readings were recorded as follows:

Perimeter wall sound readings (SDB) were as recorded:

North quadrant	SB -72
South quadrant	SB -68
East quadrant	SDB-70
West quadrant	SDB-64

## WALL SURFACES

All existing walls within the conference room are constructed of A-1 commercial gypsum board (drywall) with painted surface covering providing little to none sound absorption. Reflective surface measured at 7 where 10 is the highest reflective surface for reflective sound. The structural configuration of this room has multiply surface areas, recessed window wells, wall protrusions and ceiling drywall beams all of which augment sounds generated within this room.

On the South wall between two exterior window recesses there hangs on the wall an oversize framed print "Second Liberty Loan" with a large glass frame that is reflecting *noise generated sound waves* at the highest levels from within this room. Close examination reveals a ceiling sound speaker directly above/adjacent to said frame print. This condition creates the NOMAX effect where the speaker transmission generated from the ceiling mounted speaker deflects off the glass and is transmitted in line to two table mounted microphones creating "feed back" into the AVT-44 telecommunications system.

There exists two transverse beams buttressing the ceiling proper. Mounted directly to the center and above the conference table, each beam tested at seven (7) on a reflective scale of ten (10). This is due primarily to their immediate proximity to the return sound speakers in the ceiling creating bi-directional transmission to the conference room table.

## WINDOW BLINDS

Each window system is equipped with traditional mini venetian blinds. During our site visit they were closed for unknown reasons. Utilizing the Decibel meter at the blind surface, *reflection transmission* was at a level seven (7). This condition exists due to the high sound reflective nature of mini blinds

## CEILING

The ceiling is constructed of tradition Armstrong cellulose material providing some sound absorption. All facility components, lighting, HVAC vents, and even speaker face plates are metal in construction and reflect sound. Further more, the speakers are mounted within this ceiling and are positioned to direct their amplification "downward" towards the conference table surface microphones. The ceiling with current speaker configuration offers little to no support correcting these ancillary feedback difficulties.

## CARPET

Carpet on the floor is commercial grade and rated at two (2) on the scale of ten (10) for reflective/absorption qualities. In itself this would assist conditions but current design offers little support due to the fact that the microphones are positioned midway on the table surface between the overhead ceiling speakers and the floor. Thus by the time sound is absorbed into the carpet surface it has already violated the integrity of the microphone operations creating disfunction to the telecommunications system.

## CONFERENCE ROOM TABLE ✱

The surface of the conference room table appears to be a white Melmac material similar in construction to counter top surfaces. Smooth with hard plastic laminate, it reflects peripheral sound generation at eight (8) on the Nomax scale *There are absolutely no sound retention qualities to this surface*. Compounding the problem is the overhead sound speakers transmitting downward creating a bounce effect (BE) overlapping into the resident microphones. Of all the materials Forte-Stevens tested in the conference room, the table surface area was by far the very worst of conditions contributing significantly to "back feed effect" (BFE).